



1

SEQUENCE LISTING

<110> KULOMAA, MARKKU SAKARI
NORDLUND, HENRI RAINER
LAITINEN, OLLI HEIKKI
HYTONEN, VESA PEKKA

<120> IMPROVED MUTANTS OF BIOTIN BINDING PROTEIN

<130> 3502-1073

<140> 10/525,409

<141> 2005-11-07

<150> PCT/FI03/00619

<151> 2003-08-22

<150> FI 20021518

<151> 2002-08-23

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<170> PatentIn Ver. 3.3

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<223> Description of Artificial Sequence: Synthetic
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Ala Leu Val Ala Pro Gly Leu Ser Ala Arg Lys Cys Ser Leu Thr Gly
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Lys Trp Thr Asn Asp Leu Gly Ser Asn Met Thr Ile Gly Ala Val Asn
 35 40 45

Ser Arg Gly Glu Phe Thr Gly Thr Tyr Ile Thr Ala Val Thr Ala Thr
 50 55 60

Ser Asn Glu Ile Lys Glu Ser Pro Leu His Gly Thr Gln Asn Thr Ile
 65 70 75 80

Asn Lys Arg Thr Gln Pro Thr Phe Gly Phe Thr Val Asn Trp Lys Phe
 85 90 95

Ser Glu Ser Thr Thr Val Phe Thr Gly Gln Cys Phe Ile Asp Arg Asn
 100 105 110

Gly Lys Glu Val Leu Lys Thr Met Trp Leu Leu Arg Ser Ser Val Asn
 115 120 125

Asp Ile Gly Asp Asp Trp Lys Ala Thr Arg Val Gly Ile Asn Ile Phe
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Thr Arg Leu Arg Thr Gln Lys Glu
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 20 25 30

Lys Trp Asp Asn Asp Leu Gly Ser Ile Met Thr Ile Gly Ala Val Asn
 35 40 45

Asp Asn Gly Glu Phe Asn Gly Thr Tyr Ile Thr Ala Val Ala Asp Asn
 50 55 60

Pro Gly Asn Ile Thr Arg Ser Pro Leu Leu Gly Ile Gln His Lys Arg
 65 70 75 80

Ala Cys Gln Pro Thr Phe Gly Phe Thr Val His Trp Asn Phe Ser Glu
 85 90 95

Ser Thr Ser Val Phe Val Gly Gln Cys Phe Val Asp Lys Ser Gly Lys
 100 105 110

Glu Val Leu Lys Thr Lys Trp Leu Gln Arg Leu Ala Val Asp Asp Ile
 115 120 125

Ser Asp Asp Trp Lys Ala Thr Arg Val Gly Asn Asn Asp Phe Thr Arg
 130 135 140

Gln Arg Thr Val Glu Glu
 145 150

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Ala Leu Val Ala Pro Ser Leu Ser Ala Arg Lys Cys Ser Leu Thr Gly
 20 25 30

Glu Trp Asp Asn Asp Leu Gly Ser Ile Met Thr Ile Gly Ala Val Asn
 35 40 45

Asp Asn Gly Glu Phe Asp Gly Thr Tyr Ile Thr Ala Val Ala Asp Asn
 50 55 60

Pro Gly Asn Ile Thr Leu Ser Pro Leu Leu Gly Ile Gln His Lys Arg
 65 70 75 80

Ala Ser Gln Pro Thr Phe Gly Phe Thr Val His Trp Asn Phe Ser Glu
 85 90 95

Ser Thr Ser Val Phe Val Gly Gln Cys Phe Val Asp Arg Ser Gly Lys
 100 105 110

Glu Val Leu Lys Thr Lys Trp Leu Gln Arg Leu Ala Val Asp Asp Ile
 115 120 125

Ser Asp Asp Trp Ile Ala Thr Arg Val Gly Asn Asn Asp Phe Thr Arg
 130 135 140

Gln His Thr Val Glu Glu
 145 150

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Ala Leu Val Ala Pro Ser Leu Ser Ala Arg Lys Cys Ser Leu Thr Gly
 20 25 30

Lys Trp Thr Asn Asn Leu Gly Ser Ile Met Thr Ile Arg Ala Val Asn
35 40 45

Ser Arg Gly Glu Phe Ala Gly Thr Tyr Leu Thr Ala Val Ala Asp Asn
50 55 60

Pro Gly Asn Ile Lys Leu Ser Pro Leu Leu Gly Ile Gln His Lys Arg
65 70 75 80

Ala Cys Gln Pro Thr Phe Gly Phe Thr Val His Trp Asn Phe Ser Glu
85 90 95

Ser Thr Ser Val Phe Val Gly Gln Cys Phe Ile Asp Arg Ser Gly Lys
100 105 110

Glu Val Leu Lys Thr Lys Trp Leu Gln Arg Leu Ala Val Asp Asp Ile
115 120 125

Ser Asp Asp Trp Lys Ala Thr Arg Val Gly Tyr Asn Asn Phe Thr Arg
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Gln Arg Thr Val Glu Glu
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<212> PRT

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20 25 30

Lys Trp Thr Asn Asn Leu Gly Ser Ile Met Thr Ile Arg Ala Val Asn
35 40 45

Ser Arg Gly Glu Phe Thr Gly Thr Tyr Leu Thr Ala Val Ala Asp Asn
50 55 60

Pro Gly Asn Ile Thr Leu Ser Pro Leu Leu Gly Ile Gln His Lys Arg
65 70 75 80

Ala Ser Gln Pro Thr Phe Gly Phe Thr Val His Trp Asn Phe Ser Glu
85 90 95

Ser Thr Thr Val Phe Thr Gly Gln Cys Phe Ile Asp Arg Asn Gly Lys
100 105 110

Glu Val Leu Lys Thr Met Trp Leu Leu Arg Ser Ser Val Asn Asp Ile
115 120 125

Ser Tyr Asp Trp Lys Ala Thr Arg Val Gly Tyr Asn Asn Phe Thr Arg
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Leu Cys Thr Val Glu Glu
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20 25 30

Glu Trp Asp Asn Asn Leu Gly Ser Ile Met Thr Ile Gly Ala Val Asn
35 40 45

Asp Asn Gly Glu Phe Asn Gly Thr Tyr Ile Thr Ala Val Ala Asp Asn
50 55 60

Pro Gly Asn Ile Lys Leu Ser Pro Leu Leu Gly Ile Gln His Lys Arg
65 70 75 80

Ala Cys Gln Pro Thr Phe Gly Phe Thr Val His Trp Asn Phe Ser Glu
85 90 95

Ser Thr Ser Val Phe Val Gly Gln Cys Phe Val Asp Arg Ser Gly Lys
100 105 110

Glu Val Leu Lys Thr Lys Trp Leu Gln Arg Leu Ala Val Asp Asp Ile
115 120 125

Ser Asp Asp Trp Lys Ala Thr Arg Val Gly Tyr Asn Asn Phe Thr Arg
130 135 140

Gln Arg Thr Val Glu Glu
145 150

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Ala Leu Val Ala Pro Gly Leu Ser Ala Arg Lys Cys Ser Leu Thr Gly
20 25 30

Glu Trp Asp Asn Asn Leu Gly Ser Ile Met Thr Ile Gly Ala Val Asn
35 40 45

Asp Asn Gly Glu Phe Asn Gly Thr Tyr Ile Thr Ala Val Ala Asp Asn
50 55 60

Pro Gly Asn Ile Lys Leu Ser Pro Leu Leu Gly Ile Gln His Lys Arg
65 70 75 80

Ala Cys Gln Pro Thr Phe Gly Phe Thr Val His Trp Asn Phe Ser Glu
85 90 95

Ser Thr Ser Val Phe Val Gly Gln Cys Phe Ile Asp Arg Ser Gly Lys
100 105 110

Glu Val Leu Lys Thr Lys Trp Leu Gln Arg Leu Ala Val Asp Asp Ile
115 120 125

Ser Asp Asp Trp Lys Ala Thr Arg Val Gly Tyr Asn Asn Phe Thr Arg
130 135 140

Gln Arg Thr Val Glu Glu
145 150

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<212> PRT

<213> Gallus gallus

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Ala Arg Lys Cys Ser Leu Thr Gly Lys Trp Thr Asn Asp Leu Gly Ser
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Asn Met Thr Ile Gly Ala Val Asn Ser Arg Gly Glu Phe Thr Gly Thr
20 25 30

Tyr Thr Thr Ala Val Thr Ala Thr Ser Asn Glu Ile Lys Glu Ser Pro
35 40 45

Leu His Gly Thr Glu Asn Thr Ile Asn Lys Arg Thr Gln Pro Thr Phe
50 55 60

Gly Phe Thr Val Asn Trp Lys Phe Ser Glu Ser Thr Thr Val Phe Thr
65 70 75 80

Gly Gln Cys Phe Ile Asp Arg Asn Gly Lys Glu Val Leu Lys Thr Met
85 90 95

Trp Leu Leu Arg Ser Ser Val Asn Asp Ile Gly Asp Asp Trp Lys Ala
100 105 110

Thr Arg Val Gly Ile Asn Ile Phe Thr Arg Leu Arg Thr Gln Lys Glu
115 120 125

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<212> PRT

<213> Gallus gallus

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Ala Arg Lys Cys Ser Leu Thr Gly Lys Trp Thr Asn Asn Leu Gly Ser
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Ile Met Thr Ile Arg Ala Val Asn Ser Arg Gly Glu Phe Thr Gly Thr
 20 25 30

Tyr Leu Thr Ala Val Ala Asp Asn Pro Gly Asn Ile Thr Leu Ser Pro
 35 40 45

Leu Leu Gly Ile Gln His Thr Ile Lys Arg Ala Ser Gln Pro Thr Phe
 50 55 60

Gly Phe Thr Val His Trp Asn Phe Ser Glu Ser Thr Thr Val Phe Thr
 65 70 75 80

Gly Gln Cys Phe Ile Asp Arg Asn Gly Lys Glu Val Leu Lys Thr Met
 85 90 95

Trp Leu Leu Arg Ser Ser Val Asn Asp Ile Ser Tyr Asp Trp Lys Ala
 100 105 110

Thr Arg Val Gly Tyr Asn Asn Phe Thr Arg Leu Cys Thr Val Glu Glu
 115 120 125